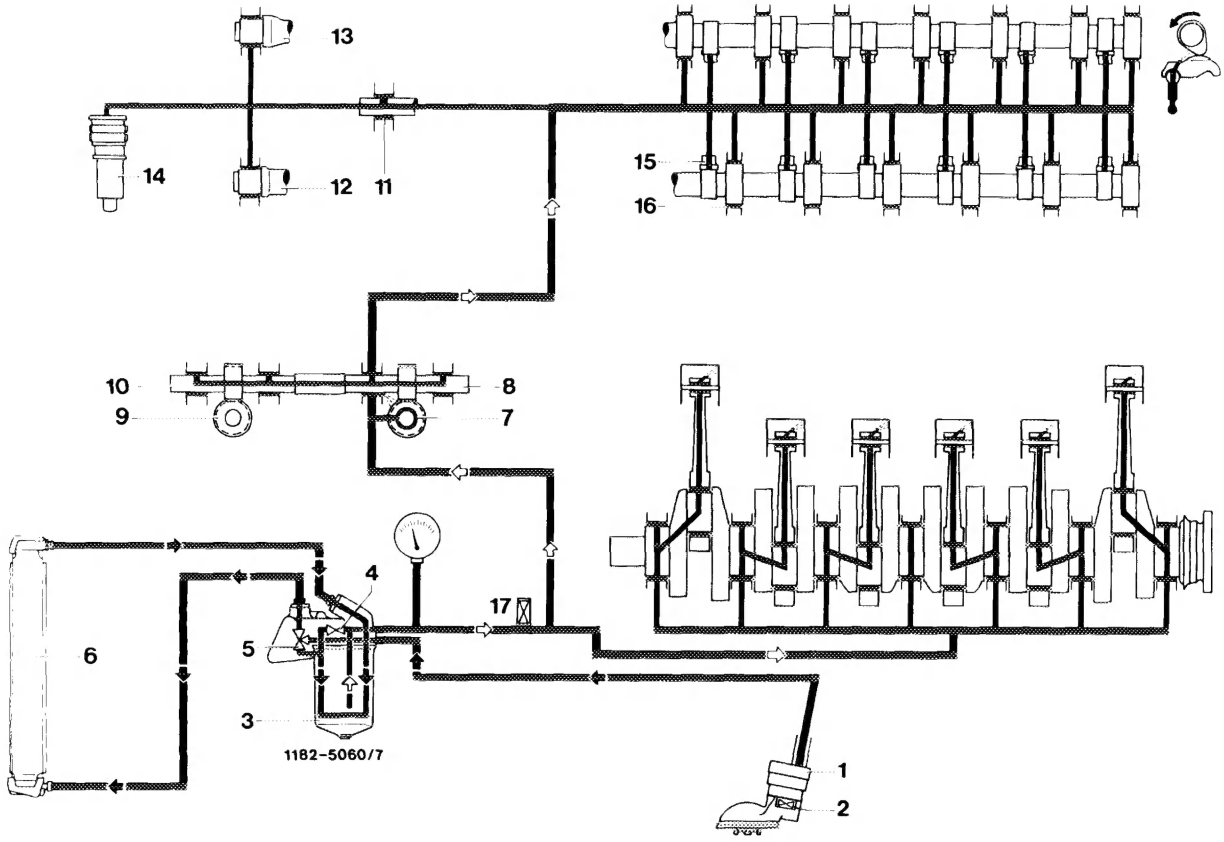
Oil circuit with air oil cooler



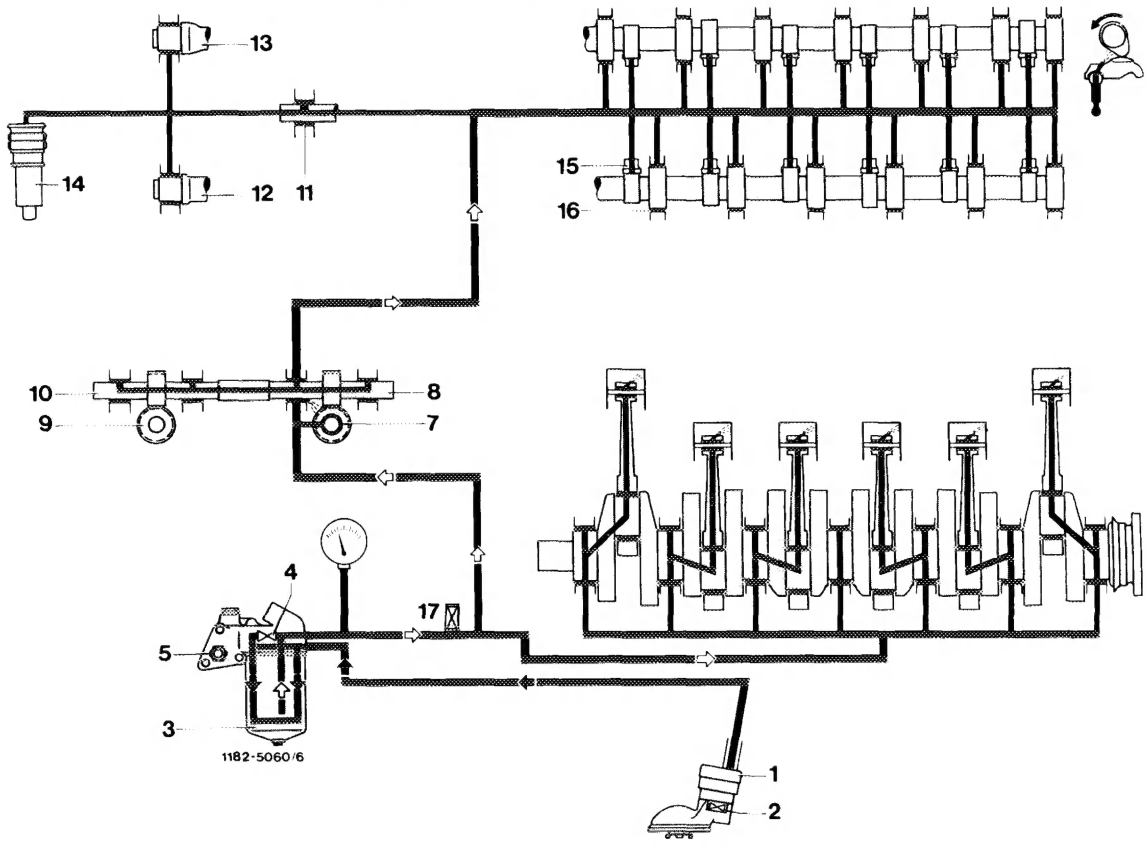
1 Oil pump
2 Pressure relief valve (7 bar) (built-in oil pump)
3 Oil filter
4 Bypass valve filter element
5 Thermostat with control valve
6 Air oil cooler
7 Oil pump drive
8 Intermediate wheel shaft
9 Distributor drive
10 Intermediate wheel shaft
11 Guide wheel
12 Intake camshaft
13 Exhaust camshaft
14 Chain tensioner
15 Rocker arms
16 Camshaft bearings
17 Pressure relief valve in front main oil bore (5 bar)

Attention!
The oil circuit is controlled by a thermostat (5) in the oil filter upper section.

Starting at an oil temperature of approx. 95 °C or 110 °C (203 °F or 230 °F) beginning with model 126, the oil flows via air oil cooler. The bypass circuit is only opened as long os the oil temperature is below approx. 95 °C or 110 °C (203 °F or 230 °F).

If for any reason the air oil cooler (6) is disconnected or the connections on oil filter top are closed blind, **removal of thermostat with control valve and compression spring is absolutely required** (18–125). If this is not done, the oil supply to the bearing points will be interrupted at oil temperatures above approx. 95 °C or 110 °C (203 °F or 230 °F).

Oil circuit without air oil cooler



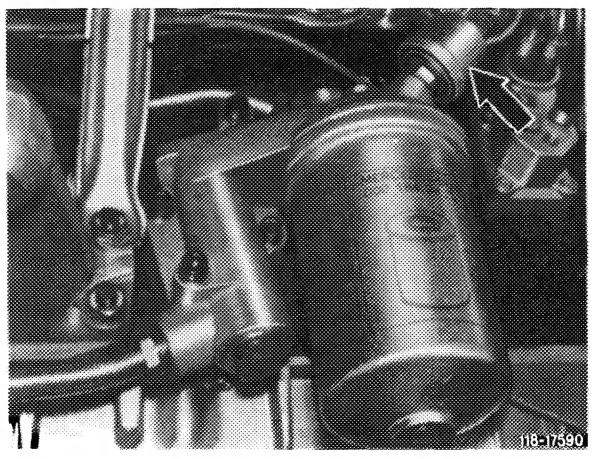
1 Oil pump
2 Pressure relief valve (7 bar) (built in oil pump)
3 Oil filter
4 Bypass valve filter element
5 17°C temperature switch
7 Oil pump drive
8 Intermediate wheel shaft
9 Distributor drive
10 Intermediate wheel shaft
11 Guide wheel
12 Intake camshaft
13 Exhaust camshaft
14 Chain tensioner
15 Rocker arms
16 Camshaft bearings
17 Pressure relief valve in front main oil bore (5 bar)

Oil pressure

At operating temperature the oil pressure at idle may drop to 0.5 bar gauge pressure.

Upon acceleration the oil pressure should immediately increase again and should attain min. 3 bar gauge pressure at 3000 rpm.

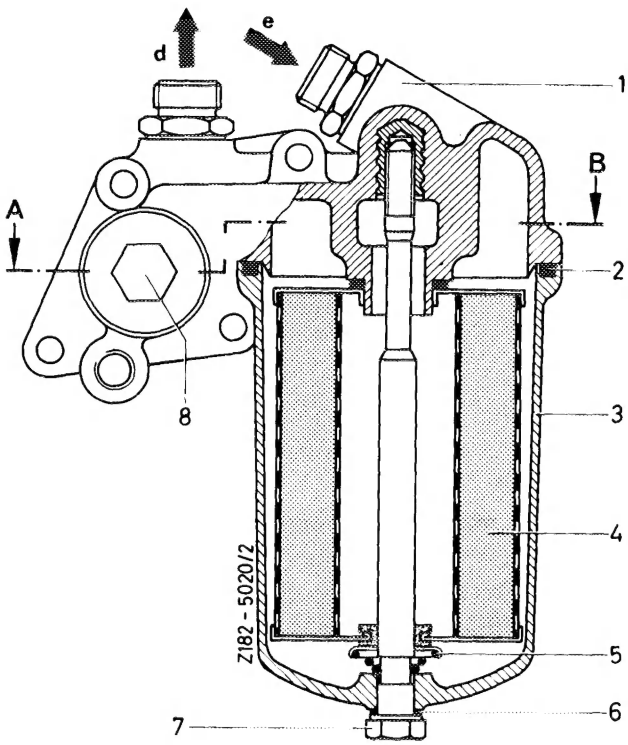
On model 126 the oil pressure is not indicated as before by means of a capillary tube connected to a pressure gauge in instrument cluster, but by means of a pressure transmitter which is electrically activated. The pressure transmitter is screwed to oil filter top (arrow).



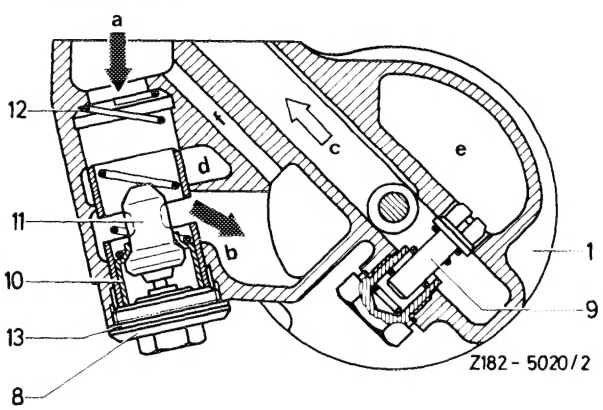
Oil filter with pressure transmitter

Opening pressures of pressure relief and bypass valve	bar relief pressure
Pressure relief valve (2) for oil pump	7
Bypass valve (4) for filter cartridge	3.5
Pressure relief valve (17) in front main oil bore	5

Oil filter models 107, 114, 116



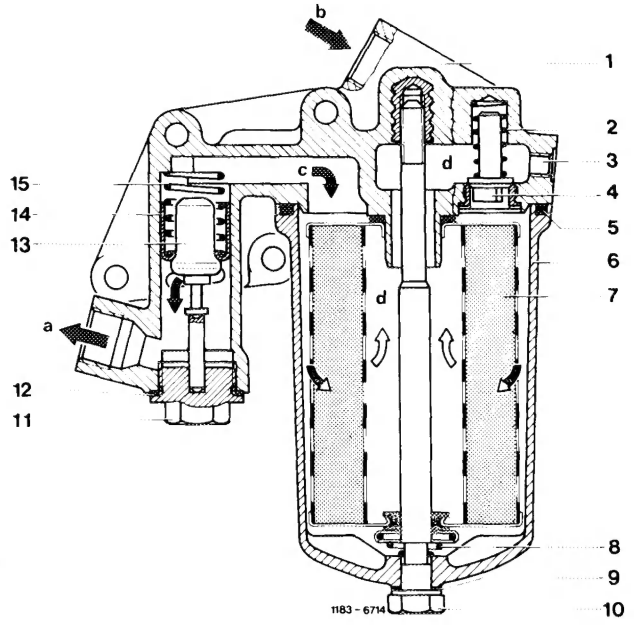
Section A–B



1 Filter upper section
2 Seal
3 Filter lower section
4 Filter cartridge
5 Spring with spring retainer
6 Seal
7 Hex. head screw
8 Plug
9 Bypass valve – filter cartridge
10 Control valve
11 Thermostat
12 Spring
13 Seal

a from oil pump
b to filter lower section
c to bearings
d to air oil cooler
e from air cooler to filter lower section
f bypass bore

Oil filter model 123 and models 107, 116 with continuous fuel injection, 2nd version carburetor engine

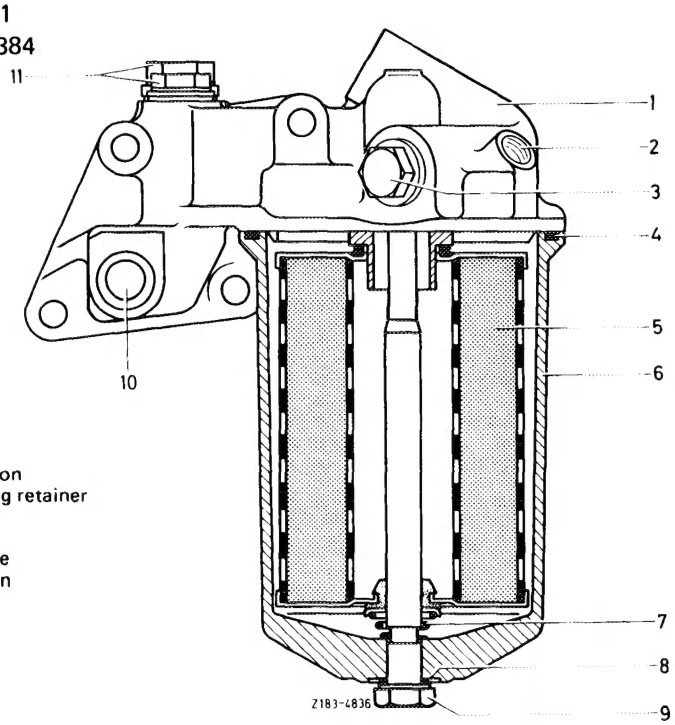


1 Filter upper section
2 Spring
3 Oil pressure gage connection
4 Bypass valve/filter cartridge
5 Seal
6 Filter lower section
7 Filter cartridge
8 Spring with spring retainer
9 Seal
10 Hex. head screw
11 Plug
12 Seal
13 Thermostat
14 Control valve
15 Spring

a to air oil cooler
b from air oil cooler
c from oil pump
d to bearings

Oil filter, model 114 USA version

Model 280 (114.060) up to chassis end No. 014 231
Model 280 C (114.073) up to chassis end No. 003 384

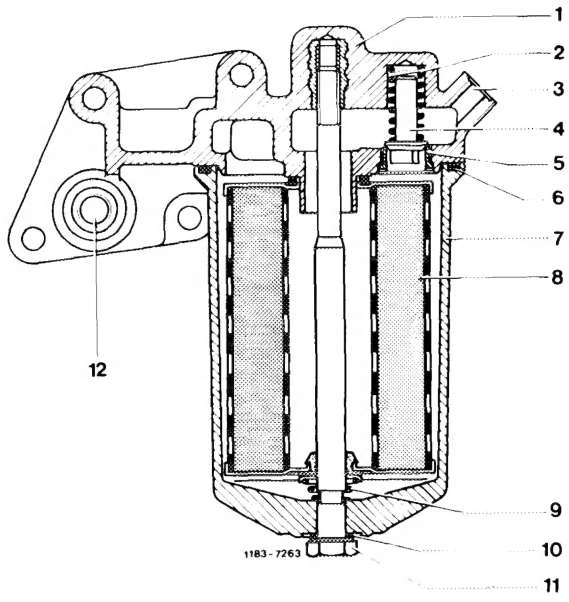


1 Filter upper section
2 Oil pressure gage connection
3 Plug for filter cartridge bypass valve
4 Seal
5 Filter cartridge
6 Filter lower section
7 Spring with spring retainer
8 Seal
9 Hex. head screw
10 17°C temperature switch connection
11 Plugs

Oil filter models 114 and 116.020 USA and Sweden version

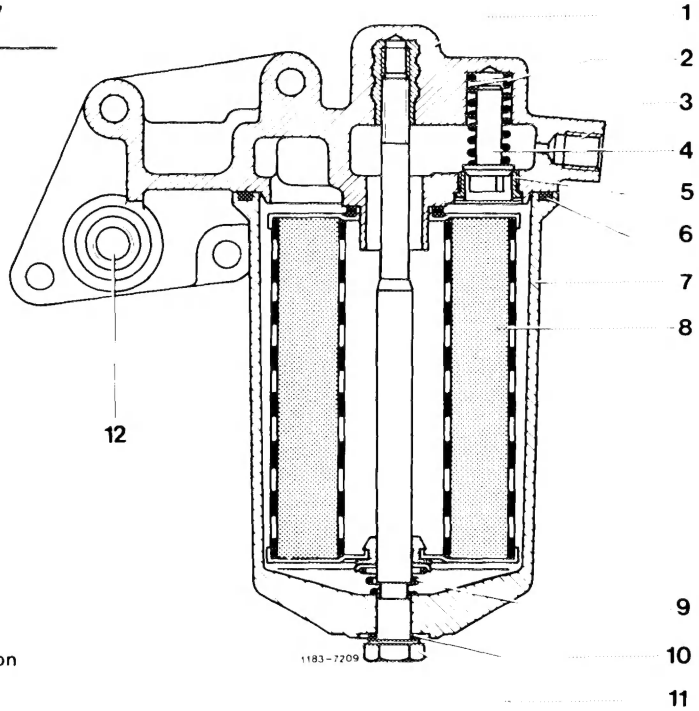
Model 280 (114.060) from chassis end No. 014 232
Model 280 C (114.073) from chassis end No. 003 385

Note: Oil filters up to and from the specified chassis end numbers are interchangeable.



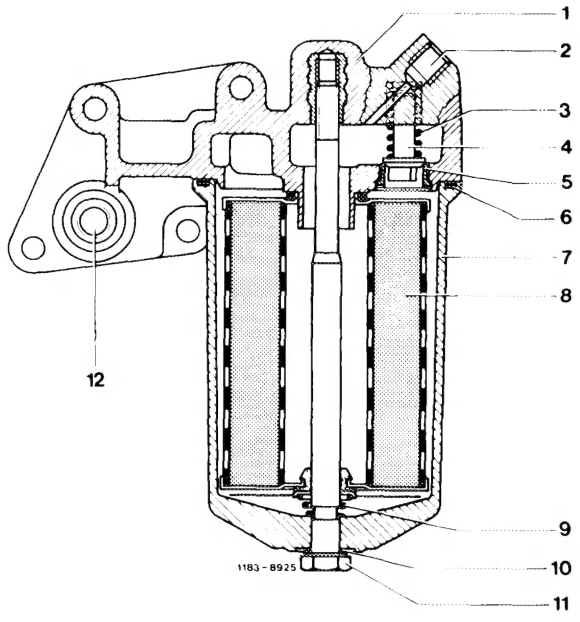
1 Filter upper section
2 Spring
3 Oil pressure gage connection
4 Filter cartridge bypass valve
5 Valve seat
6 Seal
7 Filter lower section
8 Filter cartridge
9 Spring with spring retainer
10 Seal
11 Hex. head screw
12 17°C temperature switch connection

Oil filter without air oil cooler, model year 1977



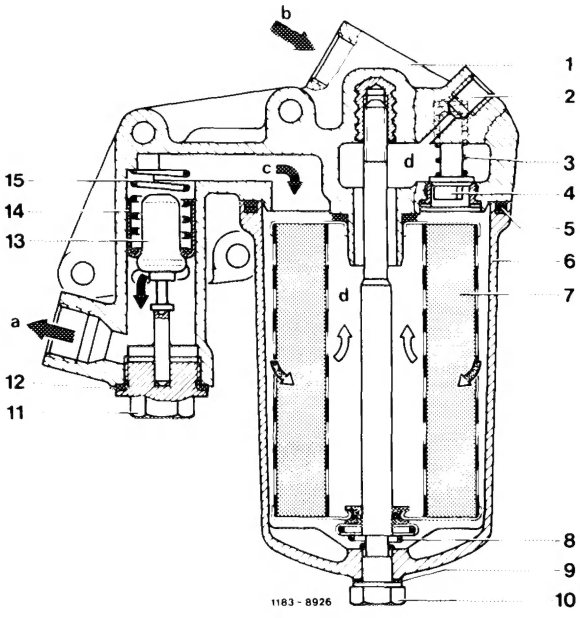
1 Filter upper section
2 Spring
3 Oil pressure gage connection
4 Filter cartridge bypass valve
5 Valve seat
6 Seal
7 Filter lower section
8 Filter cartridge
9 Spring with spring retainer
10 Seal
11 Hex. head screw
12 17°C temperature switch connection

Oil filter model 126 without air oil cooler



1 Filter top
2 Connection for oil pressure transmitter
3 Compression spring
4 Filter cartridge bypass valve
5 Valve seat
6 Sealing ring
7 Filter lower section
8 Filter cartridge
9 Compression spring with spring retainer
10 Sealing ring
11 Hex. head screw
12 17 °C temperature switch connection

Oil filter model 126 with air oil cooler



1 Filter upper section
2 Connection for oil pressure transmitter
3 Compression spring
4 Filter cartridge bypass valve
5 Sealing ring
6 Filter lower section
7 Filter cartridge
8 Compression spring with spring retainer
9 Sealing ring
10 Hex. head screw
11 Closing plug
12 Sealing ring
13 Thermostat
14 Control valve
15 Compression spring

a To air oil cooler
b From air oil cooler
c From oil pump
d To bearing points

Note

Engines 110 are provided with oil filter elements of engines 116, 117 as standard equipment. The part no. of the filter element on oil filter bowl has been changed from the former 000 184 98 25 to 00 184 99 25.

The former filter element, part no. 000 184 98 25 is valid as a running-in filter up to 1st inspection.

Starting 1980, the oil filters, part no. 001 184 64 25 are valid as running-in filters or 001 184 65 25 as constant operation filters.

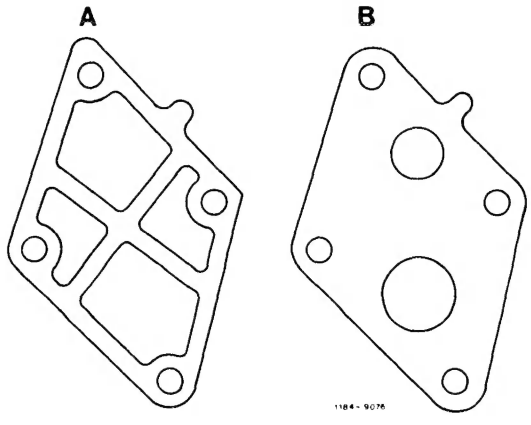
When the oil filter is removed, remainders of gasket may stick to flange surface of cylinder crankcase.

To prevent such remainders from entering the pure oil duct of the cylinder crankcase during removal (e.g. by scraping), the bores should be covered or closed first.

New oil filters are supplied with running-in filter elements which may be used on new engines up to first inspection.

These filter elements have a restricted operating life and should be exchanged against normal filter elements when new oil filters are installed on run-in engines.

To prevent that the former gasket (A), part no. 110 184 03 80, is pushed out and thereby made leaking, the present version (B), part no. 110 184 05 80, is perforated only in range of forward or return flow.



Standard application

Engine	starting engine end no. manual transmission	automatic transmission
110.922	040354	067119
110.923	013226	017239
110.932	010320	002765
110.984	019263	065273
110.985	013841	068010
110.986	003040	006862

Oil filling capacity in liters	Oil dipstick color code	pink/wine red	yellow/green
Refill capacity (dry engine)		7.5[1])	7[1])
Total filling capacity during oil and filter change		6.5	6
Oil pan max./min.		6/4.5	5.5/4

[1]) On vehicles without air oil cooler deduct 0.5 liter refill capacity from total filling capacity.

Oil level checkup

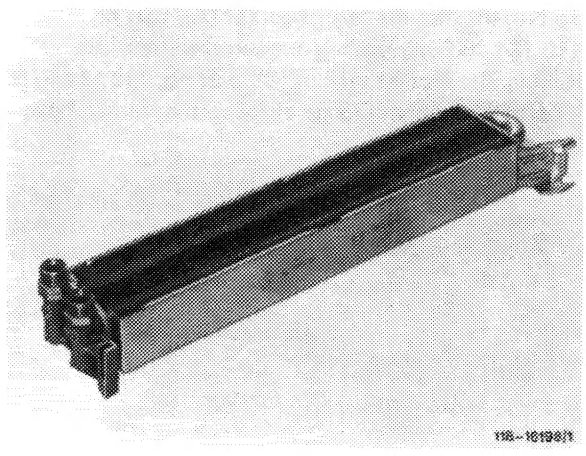
The oil level depends, among others, from oil temperature and return flow period of oil after stopping the engine. For this reason, measure oil level only approx. 2 minutes after stopping worn engine.

Prior to checking oil level, always pull out dipstick first and wipe off.

Air oil cooler

Model 126.021 with engine 110.924 is not provided with an air oil cooler.

Models 126.022/023 are provided with a double tube light alloy air oil cooler.



Double tube light alloy air oil cooler